VOLUME CONTENTS

VOLUME 63 1999 NUMBER 1

A. S. ANDREYEV and S. V. PAVLIKOV: The stability of a non-autonomous functional-differential equation relative to part of the variables 1
L. D. AKULENKO, S. V. NESTEROV and A. M. SHMATKOV: The vibration of a rotating heavy non-uniform thread and its stability 9
A. V. STEPANOV: Damping of the free oscillations of elastic systems using gyroscopes 21
C. VALLEE, A. HAMDOUNI, F. ISNARD and D. FORTUNE: The equations of motion of a rigid body without parametrization of rotations 25
I. I. LIPATOV: Problems with discontinuous boundary conditions describing laminar flows at high Reynolds numbers 31
D. B. ROKHLIN:The asymptotic form of the spectrum of tidal Kelvin waves trapped by a boundary at large values of the Lamb parameter 41
I. B. BAKHOLDIN: The structure of evolutional jumps in reversible systems 45
A. N. KRAIKO and K. S. REYENT: The inviscid nature of the asymmetry of the separating flow of a uniform stream around symmetric bodies 55
G. Ya. POPOV: A spectral relation for Chebyshev–Laguerre polynomials and its application to dynamic problems of fracture mechanics 63
R. V. GOL'DSHTEIN and A. V. MARCHENKO: The choice of constitutive relations for an ice cover 73
I. I. VOROVICH and L. P. LEBEDEV: The problem of the equilibrium of a plate reinforced with stiffeners 79
V. V. YELISEYEV and I. S. ORLOV: Asymptotic splitting in the three-dimensional problem of linear elasticity for elongated bodies with a structure 85
D. D. ZAKHAROV: The averaged equations of the dynamics of thin multilayered packets of arbitrary structure with contrasting directions of anisotropy in the elastic layers 93
I. A. SOLDATENKOV: Impression with adhesion of a punch into an elastic half-plane under a tangential load 101
Ye. V. KOVALENKO: The contact of a solid with an elastic half-space through a thin coating 109
I. G. GORYACHEVA and Yu. Yu. MAKHOVSKAYA: Capillary adhesion in the contact between elastic solids 117
V. B. GLAGOVSKII and B. M. NULLER: A contact problem of the theory of consolidation for a strip 127
S. V. SIZOV: The motion of a screw dislocation in a wedge-shaped region 137
V. M. ALEKSANDROV and D. A. POZHARSKII: The problem of a wedge-shaped punch on the face of an elastic wedge 141
V. N. TKHAI: The Third International Symposium on Classical and Celestial Mechanics (23–28 August 1998, Velikiye Luki) 145
Contents of next issue I

VOLUME 63 1999 NUMBER 2

Pelageya Yakovlevna Kochina — on her hundredth birthday 149
P. Ya. KOCHINA and N. N. KOCHINA: Some properties of a linear-fractional transformation 161
V. V. RUMYANTSEV: Forms of Hamilton's principle in quasi-coordinates 165
V. N. TKHAI: The rotational motions of mechanical systems 173
A. A. DZHUMABAYEVA, A. L. KUNITSYN and A. T. TUYAKBAYEV: Stabilization of collinear libration points in the Earth–Moon system 189
Yu. F. GOLUBEV: Resonances in linear one-degree-of-freedom systems with piecewise-constant parameters 197
A. P. MARKEYEV: The dynamics of a spherical pendulum with a vibrating suspension 205
N. N. SUBBOTINA: Asymptotic analysis of singularly perturbed Hamilton–Jacobi equations 213
S. V. SOKOLOV and I. V. SHCHERBAN': Synthesis of the optimal control of dynamical structures 223
V. V. KOZLOV: The frozen-in condition for a direction field, small denominators and chaotization of steady flows of a viscous fluid 229
O. Yu. DINARIYEV: The relation between the mechanics of dissipative finite-dimensional systems with heredity and the mechanics of infinite-dimensional Hamiltonian systems 237

M. Ya. IVANOV and L. V. TERENT'YEVA: Steady soliton-like solutions of Euler's equations with intrinsic force fields 249
O. V. MOTYGIN: Trapped modes of oscillation of a liquid for surface-piercing bodies in oblique waves 257
V. M. ENTOV: The dynamics of a thin slug of reacting impurity in flow in a porous medium 265
V. I. YEROFEYEV and I. N. SOLDATOV: A shear surface wave at the interface of an elastic body and a micropolar liquid 277
V. M. ALEKSANDROV and D. A. POZHARSKII: An asymptotic method in contact problems 283
V. B. ZELENTSOV: An asymptotic method of solving transient dynamic contact problems 291
V. Yu. STOLBOV and P. V. TRUSOV: Optimal control of the deformation path of a metal under complex loading 299
I. A. KIIKO: Formulation of the problem of the flutter of a shell of revolution and a shallow shell in a high-velocity supersonic gas flow 305
V. S. ZHIROV: A light wing 313
L. Z. FISHMAN: The stability of systems with a delay at points on the boundaries of stability domains where safe sections become unsafe ones 323
V. B. LISIN and A. I. POTAPOV: A variational method of deriving the equations of the non-linear mechanics of liquid crystals 327
M. N. STAPANYAN: The point moment at an arbitrary point of an elastic plane weakened by an elliptical hole 333
Contents of next issue I

VOLUME 63 1999 NUMBER 3

Lev Vasil'yevich Ovsyannikov (on the occasion of his 80th birthday) 337
L. V. OVSYANNIKOV: Some results of the implementation of the "PODMODELI" program for the gas dynamics equations 349
V. K. ANDREYEV and A. A. RODIONOV: Invariant solutions of rank two of the equations of the rotationally-symmetric motions of an inhomogeneous liquid 359
G. V. POPOVICH and R. Ye. POPOVICH: Flows of an incompressible fluid with linear vorticity 369
G. G. DENISOV: The problem of the wave momentum, radiation pressure and other quantities in the case of plane motions of an ideal gas 375
A. I. RYLOV: Asymptotic behaviour and level-curve structure in plane subsonic potential flows 387
S. P. BAUTIN: The asymptotic laws of shockless strong compression of quasi-one-dimensional gas layers 397
I. A. BASHKIRTSEVA: An analytical method for solving the problem of unshocked conical gas compression 405
V. A. KUKUSHKIN: Two-dimensional interaction of Riemann compression waves 413
M. Sh. SHAVALIYEV: Investigation of the structure of a weak shock wave and the propagation of small perturbations in gaseous mixtures using Burnett's equations 427
S. I. CHERNYSHENKO: Non-linear development of rotating stall in an axial compressor at a near-critical flow rate 439
Kh. V. OGANESYAN and A. M. TER-KRIKOROV: The instability of steady flows generated by a vortex line in a stratified gas 449
V. I. GRABOVSKII and A. N. KRAIKO: Optimum design of infinite journal bearing with a minimum of the friction moment 453
A. G. PETROV: Instability of the equilibrium position of a heavy sphere in a steady non-uniform potential flow 463
A. V. MARCHENKO: The floating behaviour of a small body acted upon by a surface wave 471
I. Ye. ANUFRIYEVA and L. V. PETUKHOV: The construction of boundary analogues of variational methods to approximate weak solutions of boundary-value problems in the theory of elasticity 479
A. S. KRAVCHUK: Tomographic algorithms in the theory of elasticity 491
A. G. KOLPAKOV: The governing equations of a thin elastic stressed beam with a periodic structure 495
S. A. BERESTOVA and Ye. A. MITYUSHOV: An exact determination of the effective moduli of elasticity of micro-inhomogeneous media 505
Contents of next issue I

VOLUME 63 1999 NUMBER 4

Announcement to authors and readers of the *Journal of Applied Mathematics and Mechanics* 509
G. K. MIKHAILOV: Two-hundred-and-seventy-five years of the Russian Academy of Sciences 511
B. S. BARDIN: Bifurcation of periodic solutions of a system close to a Lyapunov system 517
M. A. F. AZIZ, A. F. VAKAKIS and L. I. MANEVICH: Exact solutions of the vibro-impact oscillations of a discrete system with the two degrees of freedom 527
E. E. SHNOL': The loss of stability of symmetrical equilibrium positions 531
V. B. KOLMANOVSKII: The stability of certain discrete time Volterra equations 537
A. A. MAILYBAEV and A. P. SEIRANYAN: The stability domains of Hamiltonian systems 545
Kh. G. GUSEINOV, A. A. NEZNAKHIN and V. N. USHAKOV: Approximate construction of attainability sets of control systems with integral constraints on the controls 557
O. Yu. DINARIYEV: Fundamental statements of the phenemenological approach in non-local hydrodynamics 569
E. N. BERESLAVSKII: The Zhukovskii problem of the flow around a sheet pile 579
Yu. V. KISTOVICH and Yu. D. CHASHECHKIN: An exact solution of a linearized problem of the radiation of monochromatic internal waves in a viscous fluid 587
Yu. I. KAPRANOV: The filtering of a suspension of solid particles 595
A. G. YEGOROV: The plane contact problem of seepage consolidation 603
L. D. AKULENKO and S. V. NESTEROV: The natural oscillations of distributed inhomogeneous systems described by generalized boundary-value problems 617
A. P. CHUGAINOVA: The existence of Riemann invariants in the one-dimensional equations of the non-linear theory of elasticity 627
A. G. KOLPAKOV and I. G. SHEREMET: The stiffnesses of non-homogeneous plates 633
I. I. ARGATOV: The indentation of a punch in the form of an elliptical paraboloid into the plane boundary of an elastic body 641
A. G. SHATALOV: The ray method for solving the three-dimensional dynamic problem of coupled thermo-elasticity for a sphere 651
V. Yu. STOLBOV and P. V. TRUSOV: Coupled problems of the optimization of the elasto-plastic deformation of metals 657
Z. P. KOZLOVA: Comments on impact effect 665
S. E. NOSOV: Diffraction of a plane elastic wave by a wedge with a special form boundary conditions..... 667
Contents of next issue I

VOLUME 63 1999 NUMBER 5

F. L. CHERNOUS'KO: Control of a system with one degree of freedom under complex restrictions..... 669
V. I. MAKSIMOV and L. PANDOLFI: The reconstruction of controls in non-linear distributed systems.... 677
V. I. MATYUKHIN: Stabilization of the motions of mechanical systems with non-holonomic constraints .. 685
V. I. VOROTNIKOV: Problems of stability with respect to part of the variables..... 695
L. D. AKULENKO, S. V. NESTEROV and A. M. SHMATKOV: Generalized parametric oscillations of mechanical systems 705
A. P. MARKEYEV: Non-linear oscillations of a Hamiltonian system with 2:1 resonance 715
V. A. SAMSONOV: Reorganization of the configuration manifold and critical systems..... 727
G. B. MALYKIN: The application of the solid-angle theorem in the special theory of relativity 731
A. P. BLINOV: A special case of the motion of a point mass..... 737
O. V. KHOLOSTOVA: The dynamics of a Lagrange top with a vibrating suspension point..... 741
A. S. KULESHOV: The steady motions of a disc on an absolutely rough plane..... 751
V. A. YEREMEYEV and L. M. ZUBOV: The theory of elastic and viscoelastic micropolar liquids 755
A. A. GUBAIDULLIN and O. YU. KUCHUGURINA: Propagation of weak perturbations in cracked porous media 769
D. V. GEORGIEVSKII: The problem of the stability of quasilinear flows with respect to perturbations of the hardening function..... 779
V. D. POTAPOV: On the stability of the solutions of linear stochastic integro-differential equations encountered in elasticity and viscoelasticity problems 785

A. A. YEVTUSHENKO and Yu. A. PYR'YEV: The applicability of a hereditary model of wear with an exponential kernel in the one-dimensional contact problem taking frictional heat generation into account 795
L. A. ALEKSEYEVA, A. N. DADAYEVA and N. B. ZHANBYRBAYEV: The method of boundary integral equations in unsteady boundary-value problems of uncoupled thermoelasticity 803
A. V. KAPTSOV and S. V. KUZNETSOV: Some analytical solutions for Rayleigh waves in cubic crystals 809
A. V. ANDREYEV, R. V. GOL'DSHTEIN and Yu. V. ZHITNIKOV: An asymptotic analysis of the solution in the neighbourhood of the corner point of a crack along the kinked interface of two media 815
A. A. IGNAT'YEV: On equi-asymptotic stability with respect to part of the variables 821
E. I. DRUZHININ: The permanent rotations of a balanced non-autonomous gyrostat 825
Pelageya Yakovlevna Kochina (1899–1999) 827
Contents of next issue I

VOLUME 63 1999 NUMBER 6

Grigorii Aleksandrovich Tirskii (on the occasion of his 70th birthday) 829
G. A. TIRSKII: The hydrodynamic equations for chemically equilibrium flows of a multielement plasma with exact transport coefficients 841
S. V. SUKHININ: The whispering surface effect 863
S. P. BAUTIN: The problem of obtaining prescribed distributions of gas parameters 877
S. V. MELESHKO and V. P. SHAPEEV: The application of the differential-constraints method to the two-dimensional equations of gas dynamics 885
V. I. ZHUK: On vortex perturbations in a free-interacting boundary layer 893
A. N. KRAIKO: Spherical rarefaction flow in the neighbourhood of a reflection point of a "boundary" characteristic 909
I. Sh. AKHATOV and D. B. KHISMATULLIN: Long-wave–short-wave interaction in bubbly liquids 917
A. M. LIN'KOV: Elasticity problems involving coupled half-planes 927
I. I. ARGATOV: The asymptotic solution of the contact problem for a three-dimensional elastic body of finite dimensions 937
S. A. NAZAROV and A. S. SLUTSKII: The asymptotic form of the stressed state near a three-dimensional boundary singularity of the "claw" type 943
N. A. OSTAPENKO and G. Ye. YAKUNINA: The shape of slender three-dimensional bodies with maximum depth of penetration into dense media..... 953
A. O. VATUL'YAN and A. N. SOLOV'YEV: A new formulation of the boundary integral equations of the first kind in electroelasticity 969
V. M. LEVIN: The propagation of elastic waves in composite materials reinforced with piezoelectric fibres 977
N. B. GRIGOR'YEVA: The stability of the Jacobi ellipsoids of a rotating fluid 985
K. Sh. MKRTCHYAN: The dual nature of the transverse vibration of an elastic rod 989
Leonid Ivanovich Sedov (14.11.1907–05.09.1999) 993
Contents of next issue I
Volume Contents/Author Index for Volume 63 III